b. Amendments to the Specification

Between page 2, line 26, and page 3, line 4, please rewrite the paragraph as follows:

Referring to Figure 1, to inhibit broadening of pre-chirped optical pulses by nonlinear optical effects, imaging system 10 maintains light intensities in transmission optical fiber 16 at low values. This reduces nonlinear optical interactions, because such interactions have low rates at low light intensities. The light intensities may be maintained at the low values by lowering initial peak intensities of the optical pulses produced by laser 12. The light intensities may also be maintained at low values by using a multi-mode fiber for transmission optical fiber 16. In the multi-mode fiber, light intensities are lower than in a single mode fiber (SMF) especially when a device inserts the optical pulses in a manner that causes the optical pulses to laterally spread out thereby filling the larger core of multi-mode optical fiber. Unfortunately, a multi-modal fiber can also ~~introduces~~ introduce pulse broadening due to modal dispersion.

Between page 10, line 30, and page 11, line 12, please rewrite the paragraph as follows:

In the imaging system 90, the ~~remove~~ remote endoscopic probe 92 includes GRIN lens 48', a mechanical scanner (not shown), power lines 108, and a collection optical fiber 110. The GRIN lens 48' delivers optical pulses received from SMTF 46' to sample 50 and collects light emitted by spots 52 of the sample 50 that have been illuminated by the optical pulses. The GRIN lens 48' has a wider optical core than the SMTF 46', e.g., two or more times as wide. Typically, the GRIN lens 48' has a core diameter of about 80 - 125 microns or more as compared to the core diameter of about 5-15 microns for the SMTF 46'. The GRIN lens 48' substantially narrows optical pulses received from the SMTF 46', e.g., the pulses may be narrowed by 30 percent or more in the GRIN lens 48'. The mechanical scanner causes optical pulses from the SMTF 46' to traverse a 2-dimensional self-crossing scan pattern in response to an AC driving voltage applied via the power lines 108. An exemplary scan pattern is the Lissajous pattern 112 shown in Figure 8. The collection optical fiber 110 delivers to light intensity detector 114 light that the GRIN lens 48' collects from the sample 50. Exemplary light intensity detectors 114 include photo-multiplier tubes.

At page 11, lines 13 – 21, please rewrite the paragraph as follows:

In the imaging system 90, the processor 53 produces scanned multi-photon images of sample 50 by processing measured light intensities from light intensity detector 114 and voltages outputted by AC voltage driver 94, i.e., voltages measured via line 115. The measured voltages indicate positions of scan spots ~~38~~ along a Lissajous pattern when the end of transmission optical fiber 46' is performing a steady state scanning motion. Circuits and methods for extracting scan position data from AC driving voltages are well-known in the art and, e.g., are described in U.S. Patent Application No. 09/971856, ('856 application) filed Oct. 05, 2001 by W. Denk et al, which is incorporated herein by reference in its entirety.

At page 13, lines 3 – 17, please rewrite the paragraph as follows:

The GRIN lens 48' is either a rod or fiber lens. The GRIN lens 48' delivers illumination optical pulses to sample 50 and collects light emitted in response to molecular multi-photon absorptions caused by the optical pulses. The GRIN lens 48' or an attached ordinary lens (not shown) focus the optical pulses onto small scan spots 52 in the sample 50. GRIN lens 48' has a length of between ½ to ¼ modulo an integer times the GRIN lens' pitch. The GRIN lens 48' is also long enough to substantially narrow temporal widths of optical pulses received from SMTF 46' thereby increasing peak light intensities in the sample ~~22~~ <u>50</u> as already described with respect to Figures 3-5. The GRIN lens 48' is a compound lens that includes a short pitch objective GRIN lens 48o' and a relatively longer pitch relay GRIN lens 48r'. Exemplary objective and relay GRIN lenses have lengths equal to about ¼ and ¾ modulo ½ integers times their respective pitches. Configurations for such compound GRIN lenses 48' are described in U.S. patent Application No. 10/082,870 filed Feb. 25, 2002 by Mark J. Schnitzer, which is incorporated herein by reference in its entirety. In other embodiments of scanning multi-photon imaging system 90, GRIN lens 48' is a simple GRIN lens.